

What is claimed is:

1. A cleaning and sanitizing system, comprising:

a first discharge nozzle;

5 a first conduit for delivering water to the first discharge nozzle to be discharged by the first discharge nozzle as a first stream;

a second discharge nozzle;

a second conduit for delivering ozone/water to the second discharge nozzle, to be discharged from the second discharge nozzle as a stream of ozone/water;

10 a source of water connected to the first conduit for delivering ozone/water into and through the first conduit and out from the first discharge nozzle as a stream of high pressure water;

a source of ozone/water connected to the second conduit for delivering ozone/water into and through the second conduit and out from the second discharge nozzle as a stream of ozone/water;

15 said first and second nozzles being positioned relative to each other so that the water and ozone/water streams are contiguous but the ozone is not delivered into the high pressure water stream; and

20 wherein the high pressure water stream is discharged at a high enough pressure that it will exert a cleaning force on a surface to be cleaned and would convert the ozone/water into oxygen if the ozone/water stream were to be delivered into the high pressure water stream; and

wherein the high pressure water stream will clean a surface to be cleaned and the ozone/water stream will sanitize the same surface.

2. The system of claim 1, wherein the pressure of the high pressure water stream is at least about 100 psi.

3. The system of claim 1, wherein the pressure of the high pressure water stream is between about 100 psi and about 2000 psi.

4. The system of claim 3, wherein the pressure of the ozone/water stream is lower than the pressure of the high pressure water stream and is sufficiently low that the ozone does not convert to oxygen.

5. The system of claim 1, wherein the second discharge nozzle concentrically surrounds the first discharge nozzle and discharges an ozone/water stream that concentrically surrounds a high pressure water stream that is discharged from the first nozzle.

6. The system of claim 1, wherein the second discharge nozzle is positioned to discharge the stream of ozone/water along a path that is laterally adjacent the path of the high pressure water stream that is discharged from the first discharge nozzle.

7. The system of claim 1, wherein the first and second discharge nozzles are a part of a single wand that has a first end that includes inlets for sections of the first and second conduits that are in the wand and a second end that includes the first and second discharge nozzles.

8. The system of claim 1, wherein the first and second discharge nozzles are fixed in position, and the surface to be cleaned is moved relative to the first and second discharge nozzles.

9. The system of claim 1, wherein said first conduit includes a first hose section and said second conduit includes a second hose section.

10. The system of claim 9, comprising a hose reel on which the two hose sections are wound, said hose reel allowing the hoses to be pulled off from the reel and functioning to rewind the hoses back on the reel when a pull force is removed from the hoses.

11. The system of claim 9, further comprising a single wand that has a first end that includes inlets for sections of the first and second conduits that are in the wand, and a second end that includes the first and second discharge nozzles, wherein the hose sections are connected to the inlets for the sections of the first and second conduits that are in the wand.

12. The system of claim 11, wherein the second discharge nozzle concentrically surrounds the first discharge nozzle and discharges an ozone/water stream that concentrically surrounds a high pressure water stream that is discharged from the first nozzle.

13. The system of claim 1, comprising a closed loop flow path for ozone/water, wherein the second conduit extends from the closed loop path to the second discharge nozzle, and a source of make up ozone/water for adding ozone/water to the system to replace the ozone/water that leaves the path through the second conduit and the second discharge nozzle.

14. The system of claim 13, wherein the high pressure water stream discharging from the first nozzle is used to aspirate ozone/water from the second discharge nozzle.

15. A method of cleaning and sanitizing an object, comprising:

forming wash water into a high pressure first stream and directing it onto the object to be cleaned;

5 forming ozonated water into a second stream and discharging it closely adjacent the first stream of high pressure wash water but without admixing the ozone to the high pressure wash water stream;

regulating the pressure of the high pressure wash water stream so that it will exert a cleaning force on the object to be cleaned and would convert the ozone into oxygen if the ozonated water stream were to be delivered into the high pressure wash water stream; and  
10 directing the high pressure wash water stream onto the object to be cleaned; and

directing the ozonated water stream onto the object after it has been cleaned by the high pressure wash water stream, and using the ozonated water stream to sanitize the same object.

16. The method of claim 15, wherein the pressure of the high pressure water stream is at least about 100 psi.

17. The method of claim 15, wherein the pressure of the high pressure wash water stream is between about 100 psi and about 2000 psi.

18. The method of claim 17, wherein the pressure of the ozonated water stream is smaller than the pressure of the high pressure water stream.

19. The method of claim 15, comprising discharging the ozonated water stream as an annular stream that concentrically surrounds the high pressure wash water stream.

20. The method of claim 15, comprising discharging the stream of ozonated water along a path that is laterally adjacent the path of the high pressure wash water stream.

21. The method of claim 15, comprising providing a closed flow path for the ozonated water, and removing some of the ozonated water from the flow path to form the second stream that is discharged closely adjacent the first stream of high pressure wash water.

22. The method of claim 21, comprising admixing additional ozonated water to the closed loop flow path to make up for the ozonated water that is removed and discharged as the ozonated water stream.

23. The method of claim 21, comprising locating an ozonated water generator in the closed loop flow path, and providing the closed loop flow path with a pump for moving ozonated water from the ozonated water generator through the closed loop flow path and back to the ozonated water generator.